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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,786	12/04/2003	Duck Young Jung	SUN-0034	6887

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EXAMINER

PETERSON, CHRISTOPHER K

ART UNIT	PAPER NUMBER
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2622

MAIL DATE	DELIVERY MODE
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11/27/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/727,786

Applicant(s)

JUNG, DUCK YOUNG

Examiner

Christopher K. Peterson

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,7 and 8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7,8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.
2. The amendment filed on October 24, 2007 has been entered and considered by examiner. Claims 1 - 5 have been amended. Claims 1, 3 - 5, 7, and 8 are pending.

Response to Arguments

3. Applicant's arguments, see page 6, filed 10/24/2007, with respect to the rejection(s) of claim(s) 2 under Ouchi (US Patent # 5,867,213) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Hata (US Patent # 6,721,006).

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1 and 5, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouchi (US Patent # 5,867,213) in view of Hata (US Patent # 6,721,006).

As to claim 1, Ouchi teaches an image signal processing system comprising:

Art Unit: 2622

- an image sensor (2) for receiving an image of a subject in a light form under the control of a shutter control signal to generate analog signals (Col.3, lines 16 – 40);
- a first A/D converter (6) for receiving the output signals of the variable gain amplifier and converting the received output signals into digital signals (Col.3, lines 16 – 40);
- a second A/D converter (21) for receiving the output signals of the image sensor and converting the received output signals into the digital signals (Col. 5, lines 6 – 21); and

Ouchi does not teach:

- a variable gain amplifier for amplifying output signals of the image sensor under the control of a gain control signal to maximize dispersion of the analog signals.
- an image data processor for receiving the output signals of the first A/D converter and the output signals of the second A/D converter to find a movement value, generating the gain control signal and the shutter control signal, and providing the generated shutter control signal to the image sensor.

Hata teach:

- variable gain amplifier (105) for amplifying output signals of the image sensor (103) under the control of a gain control signal to maximize dispersion of the analog signals (Col. 2, line 62 – Col. 3, line 7).

Art Unit: 2622

- an image data processor (CPU 121) for receiving the output signals of an A/D converter (106) to find the shutter control signal (Col. 3, line 58 – col. 4, line 22). Hata teaches the CPU decides the timing of the image sensor.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided a variable gain amplifier and an image data processor for outputting a shutter control signal taught by Hata to the imaging device of Ouchi, because control method for the same which can prevent generation of error in the timing for starting the control when a CPU is utilized to decide the timing for starting the control of an object (Col. 1, lines 46 - 67).

As to claim 5, this claim differs from claim 1 only in that the limitation "a direct current offset controller" is additionally recited. Hata teaches a direct current offset controller (104) (Col. 2, line 58 – Col. 3, line 7).

6. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouchi (US Patent # 5,867,213) in view of Hata (US Patent # 6,721,006) as applied to claims 1 and 5 above, and further in view of Shiga (US Patent Pub # 2005/0062874).

As to claim 3, Ouchi and Hata teach the limitation "variable gain amplifier". Ouchi and Hata do not teach a variable gain amplifier is a sample-and-hold amplifier architecture. Shiga (see fig. 1) teaches a variable gain amplifier (4) as a sample-and-hold amplifier architecture. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided a variable gain amplifier with a sample-and-hold amplifier architecture taught by Shiga to the variable

Art Unit: 2622

gain amplifier of Ouchi and Hata, because the use of a sample and hold / gain control circuit is advantageous in that it does not give rise to such deterioration of a signal or decrease of the information amount of image data (Para 0105 of Shiga).

As to claim 7, this differs from claim 3 only in that claim 3 is an apparatus claim whereas claim 7 is a method. Thus claim 7 is analyzed as previously discussed with respect to claim 3 above.

7. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouchi (US Patent # 5,867,213) in view of Hata (US Patent # 6,721,006) as applied to claims 1 and 5 above, and further in view of Nagata (US Patent # 6,366,228).

As to claim 4, Ouchi and Hata teach the limitation "A/D converter". Ouchi and Hata do not teach an A/D converter is configured of a plurality of analog comparators. Nagata (see fig. 8) teaches an A/D converter configured of a plurality of analog comparators (CMP1 – 4)(Col. 12, lines 24 – 53). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided an A/D converter with a plurality of analog comparators taught by Nagata to the A/D converter of Ouchi and Hata, because the use of analog comparators reduces the manufacturing cost and power (Col. 18, lines 43 - 55).

As to claim 8, this differs from claim 4 only in that claim 4 is an apparatus claim whereas claim 8 is a method. Thus claim 8 is analyzed as previously discussed with respect to claim 4 above.

Art Unit: 2622

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher K. Peterson whose telephone number is 571-270-1704. The examiner can normally be reached on Monday - Friday 6:30 - 4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NgocYen Vu can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CKP
8 November 2007


NGOC-YEN VU
SUPERVISORY PATENT EXAMINER